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FORM**



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| Application Serial Number | 08/820,057 |
| Filing Date | March 18, 1997 |
| First Named Inventor | Christopher Turner et al. |
| Group Art Unit | 2673 |
| Examiner Name | David Lewis |
| Attorney Docket No. | MLB-038 |
| BATCH NO. (after allowance) | Not applicable |
| Patent No. | Not applicable |
| Issue Date | Not applicable |

ENCLOSURES (check all that apply)

| | | |
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| <input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Check Attached <input type="checkbox"/> Copy of Fee Transmittal Form <input checked="" type="checkbox"/> Amendment/Response <input type="checkbox"/> Preliminary <input checked="" type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Letter to Official Draftsperson including Drawings [Total Sheets ____] <input type="checkbox"/> Petition for Extension of Time <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Form PTO-1449 <input type="checkbox"/> Copies of IDS Citations <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Sequence Listing submission <input type="checkbox"/> Paper Copy/CD <input type="checkbox"/> Computer Readable Copy <input type="checkbox"/> Statement verifying identity of above | <input type="checkbox"/> Copy of Notice to File Missing Parts of Application (PTO-1553) <input type="checkbox"/> Formal Drawing(s) <input type="checkbox"/> Request For Continued Examination (RCE) Transmittal <input type="checkbox"/> Power of Attorney (Revocation of Prior Powers) <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Executed Declaration and Power of Attorney for Utility or Design Patent Application <input type="checkbox"/> Small Entity Statement <input type="checkbox"/> CD(s) for large table or computer program <input type="checkbox"/> Amendment After Allowance <input type="checkbox"/> Request for Certificate of Correction <input type="checkbox"/> Certificate of Correction (in duplicate) | <input type="checkbox"/> Notice of Appeal to Board of Patent Appeals and Interferences <input type="checkbox"/> Appeal Brief (in triplicate) <input type="checkbox"/> Status Inquiry <input checked="" type="checkbox"/> Return Receipt Postcard <input type="checkbox"/> Certificate of First Class Mailing under 37 C.F.R. 1.8 <input type="checkbox"/> Certificate of Facsimile Transmission under 37 C.F.R. 1.8 <input type="checkbox"/> Additional Enclosure(s) (please identify below) |
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PATENT
Attorney Docket No. MLB-038

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K. M. Hall

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S): Christopher Turner et al.
SERIAL NO.: 08/820,057 GROUP NO.: 2673
FILING DATE: March 18, 1997 EXAMINER: David Lewis
TITLE: PRINTABLE ELECTRONIC DISPLAY

Commissioner for Patents
Washington, D.C. 20231

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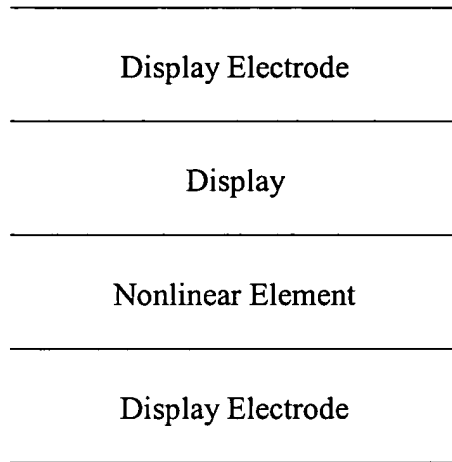
Sir:

RESPONSE TO OFFICE ACTION

This paper is submitted in response to the Office Action mailed on June 15, 2001.

In the Office Action, the Examiner contends that "Saito or Fujita et al. teaches ... a non-linear device for driving a liquid crystal display, wherein the non-linear device is sandwiched between two electrode layers[.]" We respectfully contend that this represents an incorrect reading both of the references and of the present claims.

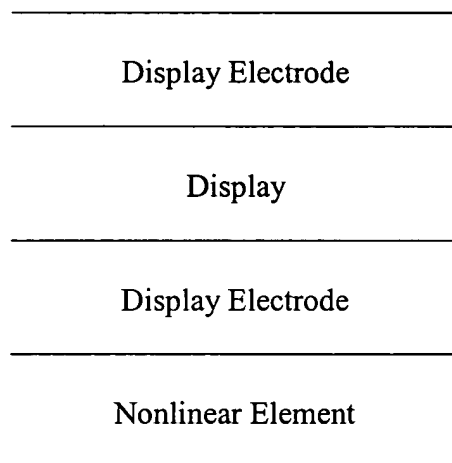
It may be helpful, in understanding the differences between the present invention and the cited art, to visualize the various layers and their relationships. The present claims recite a structure as follows:



The purpose of this construction is to allow the nonlinear element to govern switching of the display. Unless both electrodes are energized, the voltage across the nonlinear element will not exceed the element's threshold, so very little current will flow between the electrodes; as a result, the display will not be activated inappropriately. It is for this reason that the claims require the display and nonlinear elements to *electrically couple* the electrodes—i.e., they are *in series* (see specification at page 12, lines 4-5).

Saito

We respectfully submit that Saito does not, in fact, show a nonlinear device sandwiched between the two electrodes of a display. Instead, the relevant portions of Saito's construction are as follows:



Thus, the nonlinear element is *not* sandwiched between display electrodes as required by the present claims. Instead, the nonlinear element is located *beneath* one of the display electrodes rather than between them. Accordingly, the nonlinear element cannot *electrically couple* the display electrodes as required by the present claims.

In particular, as shown in Figs. 3 and 4 and as set forth in col. 2, line 62 to col. 4, line 20, Saito contemplates a nonlinear device residing between a signal line 31 carrying synchronizing pulse signals and *one display electrode*. The display is sandwiched between display electrodes but the nonlinear device is *outside* the sandwich.

At col. 4, lines 12-20, the patentees state:

The elongated portions of the electrodes 15-1 and 15-2 thus function as **one electrode of each liquid crystal display cell**. Although not shown, a liquid crystal is coated over the entire surface, and a glass board is disposed on the coated liquid crystal layer. The data lines 32 (see FIG. 2) ... are formed on the glass board in a column direction. Each of data lines 32 also operates as the other electrode of each liquid crystal display cell 33. (Emphasis added.)

It should be stressed that the location of Saito's nonlinear elements outside rather than between the display electrodes is not merely a design choice. The nonlinear elements described by Saito are essentially opaque, and Saito's liquid-crystal display is transmissive; as a result, the area occupied by the nonlinear element is permanently dark and non-switchable. It is for this reason that Saito's nonlinear device is small in area relative to that of the display (as suggested, for example, in Fig. 4) and is located outside the electrode/display structure. If Saito's nonlinear elements were to be located between the display electrodes, as required by the present claims, the entire display area would be permanently dark.

Fujita et al.

We respectfully submit that Fujita et al. also does not show a nonlinear device sandwiched between the two electrodes of a display. Instead, the relevant portions of the Fujita et al. construction are as follows:

| | | |
|-------------------|-------------------|-------------------|
| Display Electrode | | |
| Display | | |
| Bus Bar | Nonlinear Element | Display Electrode |

Once again, the nonlinear element is *not* sandwiched between display electrodes as required by the present claims, and does not *electrically couple* the display electrodes. Instead, the nonlinear element couples the *bus bar* to *one display electrode*. At col. 2, lines 13-16, Fujita

et al. specify “an amorphous semiconductor layer which is formed between the [sic] each bus bar and each of the plurality of pixel electrodes so as to provide an electrical connection there-between.”

While Fig. 11 shows a small portion of the nonlinear element extending over the lower display electrode (so that *this portion* of the nonlinear element is disposed between the lower display electrode and the display), the function of the nonlinear element 2 in Fujita et al. is nonetheless to couple the bus bar to the lower display electrode—not, as in the present claims, to couple the lower display electrode to the upper display electrode.

Accordingly, the requirements present claims simply are not met and, just as importantly, the benefits of the present invention are not obtained. Once again, the purpose of the sandwiched nonlinear element in the present claims is to electrically couple the display electrodes in order to avoid spurious activation of the display. There is no need for electrodes in addition to the two display electrodes. This simple and easily fabricated construction contrasts with both Fujita et al. (which requires a bus bar in addition to two display electrodes) and Saito (which requires a synchronization line in addition to two display electrodes).

Moreover, in accordance with the present claims, the active elements are stacked one atop the other, rendering them amenable to convenient application by deposition. There is no need to establish electrical connections among different types of components *on the same layer*, as required by Fujita et al. (as well as by Kazan).



In light of the foregoing, we respectfully request reconsideration of the claim rejections,
and submit that the application in condition for allowance. Please charge any fee occasioned by
this paper to our Deposit Account No. 20-0531.

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